

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Chen, et al.

Serial No.: 10/611,589

Confirmation No.: 5241

Filed: June 30, 2003

For: Method and Apparatus for  
Annealing Copper Films

§  
§  
§  
§  
§  
§  
§  
§  
§  
§  
§

Group Art Unit: 1742

Examiner: George P. Wyszomierski

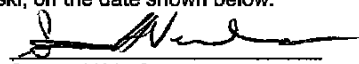
MAIL STOP AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or electronically transmitted to the U.S. Patent and Trademark Office via EFS-Web to the attention of Examiner Wyszomierski, on the date shown below.

August 17, 2006  
Date

  
Steven H VerSteeg

INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/APPM/001717.Y1/SHV.

Respectfully submitted,



---

Steven H. VerSteeg  
Registration No. 58,087  
PATTERSON & SHERIDAN, L.L.P.  
3040 Post Oak Blvd. Suite 1500  
Houston, TX 77056  
Telephone: (713) 623-4844  
Facsimile: (713) 623-4846  
Attorney for Applicant(s)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

1

of

4

Application Number

10/611,589

Filing Date

June 30, 2003

First Named Inventor

Chen, et al.

Group Art Unit

1742

Examiner Name

George P. Wyszomierski

Attorney Docket Number

APPM/001717.Y1/PPC/ECP/CKIM

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A1	US-6929774	08/16/2005	Morad, et al.	
	A2	US-6658763	12/09/2003	Morad, et al.	
	A3	US-6639189	10/28/2003	Ramana, et al.	
	A4	US-6635157	10/21/2003	Dordi, et al.	
	A5	US-6566255	05/20/2003	Ito	
	A6	US-6544338	04/08/2003	Batchelder, et al.	
	A7	US-6532772	03/18/2003	Robinson	
	A8	US-6529686	03/04/2003	Ramana, et al.	
	A9	US-6512206	01/28/2003	McEntire, et al.	
	A10	US-6483081	11/19/2002	Batchelder	
	A11	US-6477787	11/12/2002	Morad, et al.	
	A12	US-6473993	11/05/2002	Yagi, et al.	
	A13	US-6471913	10/29/2002	Weaver, et al.	
	A14	US-6423947	07/23/2002	Womack, et al.	
	A15	US-6387182	05/14/2002	Horie, et al.	
	A16	US-6357143	03/19/2002	Morad, et al.	
	A17	US-6307184	10/23/2001	Womack, et al.	
	A18	US-6297154	10/02/2001	Gross, et al.	
	A19	US-6296906	10/02/2001	Stimmell, et al.	
	A20	US-6294219	09/25/2001	Tsai, et al.	
	A21	US-6290833	09/18/2001	Chen	
	A22	US-6276072	08/21/2001	Morad, et al.	
	A23	US-6264752	07/24/2001	Curtis, et al.	
	A24	US-6263587	07/24/2001	Raaijmakers, et al.	
	A25	US-6258223	07/10/2001	Cheung, et al.	
	A26	US-6242349	06/29/2001	Nogami, et al.	
	A27	US-6228768	05/08/2001	Woo, et al.	
	A28	US-6222164	04/24/2001	Stoddard, et al.	
	A29	US-6213853	04/10/2001	Gonzalez-Martin, et al.	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

2

of

4

Application Number

10/611,589

Filing Date

June 30, 2003

First Named Inventor

Chen, et al.

Group Art Unit

1742

Examiner Name

George P. Wyszomierski

Attorney Docket Number

APPM/001717.Y1/PPC/ECP/CKIM

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A30	US-6211495	04/03/2001	Stoddard, et al.	
	A31	US-6207937	03/27/2001	Stoddard, et al.	
	A32	US-6182376	02/06/2001	Shin, et al.	
	A33	US-6174388	01/16/2001	Sikka, et al.	
	A34	US-6171922	01/09/2001	Maghsoudnia	
	A35	US-6155275	12/05/2000	Shinbara, Kaoru	
	A36	US-6151447	11/21/2000	Moore, et al.	
	A37	US-6123825	09/26/2000	Uzoh, et al.	
	A38	US-6113698	09/05/2000	Raajimakers, et al.	
	A39	US-6103638	08/15/2000	Robinson	
	A40	US-6091498	07/18/2000	Hanson, et al.	
	A41	US-6072163	06/06/2000	Armstrong, et al.	
	A42	US-6062852	05/16/2000	Kawamoto, et al.	
	A43	US-6037257	03/14/2000	Chiang, et al.	
	A44	US-6030208	02/29/2000	Williams, et al.	
	A45	US-6017820	01/25/2000	Ting, et al.	
	A46	US-6017777	01/25/2000	Kim, et al.	
	A47	US-6004047	12/21/1999	Akimoto, et al.	
	A48	US-5997712	12/07/1999	Ting, et al.	
	A49	US-5994675	11/30/1999	Bethune, et al.	
	A50	US-5980706	11/09/1999	Bleck, et al.	
	A51	US-5972110	10/26/1999	Akimoto, Masami	
	A52	US-5913147	08/15/1999	Dubin, et al.	
	A53	US-5907790	05/25/1999	Kellam	
	A54	US-5891513	04/06/1999	Dubin, et al.	
	A55	US-5885749	03/23/1999	Huggins, et al.	
	A56	US-5885134	03/23/1999	Shibata, et al.	
	A57	US-5855681	01/05/1999	Maydan, et al.	
	A58	US-5853486	12/29/1998	Ono, et al.	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 3

of 4

Application Number

10/611,589

Filing Date

June 30, 2003

First Named Inventor

Chen, et al.

Group Art Unit

1742

Examiner Name

George P. Wyszomierski

Attorney Docket Number

APPM/001717.Y1/PPC/ECP/CKIM

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A59	US-5846598	12/08/1998	Semkow, et al.	
	A60	US-5830045	11/03/1998	Togawa, et al.	
	A61	US-5807469	09/15/1998	Crafts, et al.	
	A62	US-5731678	03/24/1998	Zila, et al.	
	A63	US-5681780	10/28/1997	Mihara, et al.	
	A64	US-5673750	10/03/1997	Tsubone, et al.	
	A65	US-5665167	09/09/1997	Deguchi, et al.	
	A66	US-5664337	09/09/1997	Davis, et al.	
	A67	US-5639301	06/17/1997	Sasada, et al.	
	A68	US-5616208	04/01/1997	Lee	
	A69	US-5609688	03/11/1997	Hayashi, et al.	
	A70	US-5527390	06/18/1996	Ono, et al.	
	A71	US-5510216	04/23/1996	Calabrese, et al.	
	A72	US-5484011	01/16/1996	Tepman, et al.	
	A73	US-5478429	12/26/1995	Komino, et al.	
	A74	US-5431700	07/11/1995	Sloan	
	A75	US-5384284	01/24/1995	Doan, et al.	
	A76	US-5374594	12/20/1994	Van de Ven, et al.	
	A77	US-5314541	05/24/1994	Saito, et al.	
	A78	US-5297910	03/29/1994	Yoshioka, et al.	
	A79	US-5248384	09/28/1993	Lin, et al.	
	A80	US-5168886	12/08/1992	Thompson, et al.	
	A81	US-5156731	10/20/1992	Ogasawara, et al.	
	A82	US-5098198	03/24/1992	Nulman, et al.	
	A83	US-4854263	08/08/1989	Chang, et al.	
	A84	US-4481406	11/06/1984	Muka, et al.	
	A85	US-4265943	05/05/1981	Goldstein, et al.	
	A86	US-2026605	01/07/1936	Antisell	
	A87	US-2004/0084301	05/06/2004	Dordi, et al.	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

4

of

4

Application Number

10/611,589

Filing Date

June 30, 2003

First Named Inventor

Chen, et al.

Group Art Unit

1742

Examiner Name

George P. Wyszomierski

Attorney Docket Number

APPM/001717.Y1/PPC/ECP/CKIM

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A88	US-2004/0079633	04/29/2004	Cheung, et al.	
	A89	US-2003/0045095	03/06/2003	Ritzdorf, et al.	
	A90	US-2002/0102837	08/01/2002	Ritzdorf, et al.	
	A91	US-2002/0004301	01/10/2002	Chen, et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
	B1	JP 54 148112	11/20/1979	Nakagawa		
	B2	JP 10 079432	03/24/1998	Ro		X
	B3	EP 0829904	03/18/1998	Rogelstad		X
	B4	EP 0725427	08/07/1996	Davenport		X

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	C1	Austrian Patent Office International Search Report dated February 7, 2000 for Singapore Application No. 00010504. (APPM/003421SG)	
	C2	Decision on First Patent Examination by Taiwan Intellectual Property Office, Ministry of Economic Affairs dated April 9, 2002 and cited reference 86103261. (APPM/001717TW03)	
	C3	Hohm, et al. "Stationary Contacts," Electric Contacts Theory and Applications, Springer-Verlag, New York, Inc. 1967, pp.1-375.	
	C4	Verteq Online®, "Products Overview," 1996-1998, 5 pages (No Month).	
	C5	Wright, et al. "Low temperature etch chuck: Modeling and experimental results of heat transfer and wafer temperature," J. Vac. Sci. Technol. A. 10(4), Jul./Aug. 1992, pp. 1065-1070.	

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.